Vegetable Science (2012) 39 (1) : 101-102

Influence of tomato genotypes in relation to time of planting against fruit infestation by *Helicoverpa armigera* (Hubner)

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Received : December, 2010 / Accepted : January, 2012

The tomato fruit borer (*Helicoverpa armigera*) is an important pest of tomato and the only practical method to control this pest is use of persistent insecticide over the foliage and fruiting bodies, so as to kill the early instar larvae before they enter the fruit. As tomatoes are harvested at short intervals, application of insecticides film is both uneconomical and hazardous (Kashyap and Verma 1986). The recent trend of pest management is not to depend entirely on the use of insecticides, but use of such practices *viz.,* use of resistant or tolerant varieties and manipulation of dates of planting, cause of fertilizer etc. By adjusting the time of planting, infestation by some of the pests can be prevented. It has been observed that planting before or after a certain date can disrupt a synchronised crop-pest association and enable the plant to escape damage from pest during a susceptible growth stage, and also peak egg laying period of a particular pest can be avoided. Thus, the present investigation was made to assess the extent of damage caused by *H.armigera* by adjusting time of planting and using resistant or tolerant cultivars.

The experiment was conducted in the *Rabi* season of 2008-09 and it was laid out in Split Plot Design (SPD) with three replications. The different dates of planting *viz.,* 15th November, 30th November and 15th December as main plot treatments and sub-plot consisted of five cultivars,viz., NS-815, Karan, Pusa Early Dwarf, Pusa Ruby and a wild Local cultivar. For assessing the per cent infested fruits (number and weight basis), the formula used was:

The results revealed that the planting dates had no influence over the fruit borer on number basis. However, it was found to be significant in case of infestation on weight basis, where the percent infestation was lower in case of 15th November (25.33%) followed by 30th November (28.74%) and 15th December (29.33%) planting dates.

The different cultivars exhibited significant differences on infestation by the fruit borer (number and weight basis). On number basis, the per cent infestation was highest on NS-815 (47.07%) followed by Karan (37.59%), Pusa Early Dwarf (36.93%) and Pusa Ruby (26.47%). The local cultivar registered the least infestation of 3.08%. On weight basis, the per cent infestation was also highest on NS-815 (43.68%) followed by Karan (34.81%), Pusa Early Dwarf (32.60%) and Pusa Ruby (25.04%) and least infestation of 2.87% was found on the local cultivar.

The interaction between the dates of planting and genotypes was found to be insignificant on per cent fruit infestation (number and weight basis). However, the highest infestation of 47.30% was found on NS-815 planted on 30th November (number basis) and 44.98% on NS-815 planted on 15th December (weight basis). Least infestation of 2.21% was found on local cultivar planted on 15th November (number basis) and 2.15% on local cultivar planted on 15th November (weight basis).

In the present study, the early planting registered lower fruit borer infestation which is similar to findings of Borah (1996). With respect to fruit borer damage, none of the genotypes were found to be completely free (Brar et al. 1999). The maximum infestation was found on Karan on both number and weight basis followed by NS-815, Pusa Early Dwarf and Pusa Ruby, and the least infestation was recorded on Local cultivar. Kashyap and verma (1986) and Sivaprakasam (1996) reported low infestation of the pest on wild genotypes. The data on the interaction of the two factors exhibited non-significant. However, least fruit infestation was recorded on local cultivar planted on all the three dates and maximum fruit infestation was recorded on NS-815 planted on all planting dates.

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